

PORTLAND CEMENT ASSOCIATION



Above - One of many Omaha apartment buildings of concrete masonry is the 54-family Austin Apartments, which has given good service since 1922. Exterior walls are exposed concrete masonry furred and plastered on the interior. Partitions are of lightweight concrete masonry and floors are concrete, making for utmost firesafety. This group of five buildings has kept its attractive appearance without painting or any other structural maintenance expense whatsoever, its pleasing appearance undoubtedly contributing to the fact that rentals have been close to capacity since 1930 at rates well above the average. Built by Drake Realty Co. Managed by E. H. Benner Co.

ON THE FRONT COVER is shown the beautiful Mariano Guadalupe Junior High School, Vallejo, California—walls of exposed concrete masonry. Frederick H. Reimers, architect. San Francisco Construction Co., builder.

FOREWORD

Concrete masonry has won a unique place in modern building construction. The reasons are many. Perhaps most important is its adaptability with economy. This familiar material serves a wide range of architectural and structural purposes, frequently combining the advantages of several materials and at a substantial saving to the builder and owner.

As finish material or as a structural element, or both in one, concrete masonry is the key to architecturally beautiful exterior walls, effective interior finishes, sturdy bearing wall construction, firesafe partitions, economical backup for any type of exterior facing, and as an interior wall treatment for decorative, acous-

tic and insulation purposes.

Concrete masonry is no less versatile in its application to a variety of building types. Aside from the field of home construction, where it has made faster advance than any other wall material in recent years, architects, builders and owners frequently specify it for some purpose on buildings of practically every kind of occupancy. Stores and factories, theaters and recreational buildings, churches and schools, apartments and housing projects—examples of many kinds of buildings are shown in the following pages.

PORTLAND CEMENT ASSOCIATION

33 W. Grand Ave. • Chicago 10, III.

The activities of the Portland Cement Association, a national organization, are limited to scientific research, the development of new or improved products and methods, technical service, promotion and educational effort (including safety work), and are primarily designed to improve and extend the uses of portland cement and concrete. The manifold program of the Association and its varied services to cement users are made possible by the financial support of over 60 member companies in the United States and Canada, engaged in the manufacture and sale of a very large proportion of all portland cement used in these two countries. A current list of member companies will be furnished on request.

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WHAT CONCRETE MASONRY IS - HOW IT CAN SERVE YOU

THE term "concrete masonry" is applied to block, brick or tile building units molded from concrete and laid up in a wall. The concrete in these units is made by mixing portland cement, water and other suitable materials such as sand, pebbles, crushed stone, cinders, burned shale or slag—depending upon the weight, texture or composition desired.

Just where concrete masonry should be used and how effectively it can be employed in any building depend upon the imagination of the designer, the skill of the builder and the needs of the owner. As a structural material, concrete masonry is able to carry heavy loads; it is used regularly for both load-bearing and non-load-bearing walls and partitions. Because of its economy and high resistance to fire, it is widely demanded as backup for all kinds of facing material, for fireproofing and for floor filler. Concrete masonry is used anywhere that any masonry can be used to advantage.

Strictest requirements of building codes are met by concrete masonry which, under careful tests, is found to possess many times the strength required in average construction. Tests at Underwriters' Laboratories in which walls have been subjected to standard fire and hose exposure have resulted in the establishment of fire retardant classifications for concrete masonry walls. Concrete masonry can be made to meet a 2-hour, a 3-hour or a 4-hour fire retardant rating, as may be required in building codes.

Advantages of concrete masonry, however, are not

confined to its structural use. Contributing to its rapidly increasing acceptance are its acoustic and insulative possibilities. Concrete masonry made with lightweight aggregates has excellent sound-absorbing qualities, making the material suitable for exposed walls in auditoriums, gymnasiums, classrooms, corridors and all parts of a building where noise abatement is sought. Concrete masonry has insulative value which frequently makes it unnecessary to use additional insulation, with consequent saving to the owner.

Many Shapes, Colors, Textures

Concrete masonry units are scientifically designed and molded in sizes and shapes that permit speedy erection and consequent reduction in construction costs. Special units such as half block, corner returns, joist block, and right or left jamb units are furnished regularly. The less frequently used specials such as arches, rounded and offset corners are available on order at low cost. It is these special features of concrete masonry that have made this material so adaptable to any style of architecture and so popular everywhere as a practical building material.

Several thousand manufacturers produce concrete masonry units of standard sizes and quality, serving practically every region of the United States and Canada. Anyone who wants strong, durable, firesafe construction, wherever the location, can get maximum value from his investment by selecting concrete masonry to meet his particular requirements.

Who says a small business building must be drab! This pleasant yet efficient office of Sunland Sulphur Co., Fresno, California, is an example of concrete masonry well handled as an architectural medium.





Above—Can you "go modern" with concrete masonry? Yes, said Architect Raymond C. Stevens, who has pioneered in the design of distinctive buildings and homes with exposed concrete masonry as his architectural medium. The C&H Motors building is owned by Lucerne Investment Corp., Orlando, Florida. Kiehl and Stevens, Inc., builder.

No two commercial buildings present the same design problem. The owner of a new industrial plant thinks primarily of its functional purpose, but also expects good architectural appearance. Retail merchants and dealers, on the other hand, know that modern sales display rooms must primarily be of pleasing design to help lure trade through the doors.

Up-to-date architectural treatment in any case usually goes hand-in-hand with the need for durable and economical construction. And what combination of requirements more clearly points to concrete masonry! This versatile material offers beauty and strength, with the "pluses" of firesafety, durability and good insulative and acoustic properties.

Concrete masonry naturally is used in a wide range of capacities—as the sole structural wall material; as backup for other facing; for partitions, floor fillers, and other structural purposes shown on these pages.

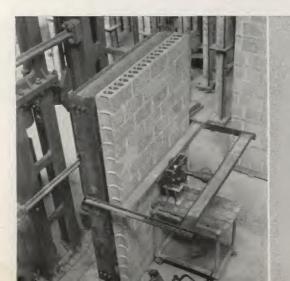






Above—The walls of Brook House, popular tea room near Brook Haven, Long Island, are dark colored concrete masonry. Units are laid up in a combination random and coursed ashlar pattern. Light colored mortar emphasizes the joints and the pattern. Aymar Embury II, architect. Leslie R. Marchant, builder.

Left—The decorative detail as well as the architectural lines of Orlando Farm Implement Company's good-looking building at Orlando, Florida, were achieved with concrete masonry, cement painted inside and outside. Designed and built for Harry L. McDonald by Kiehl and Stevens, Inc.



FOR STURDINESS

The great strength and stability of concrete masonry have been demonstrated by tests at the University of Illinois (left) and at the Research Laboratory of the Portland Cement Association. These tests showed that concrete masonry walls are unusually strong, providing a factor of safety from 4 to 9 times the maximum loading permitted in building

codes. Equally high wall strengths are obtained when concrete masonry is used in combination with a brick facing. This great stability is the owner's assurance that his buildings will have the required strength to withstand hard usage.

Write Portland Cement Association, 33 W. Grand Ave., Chicago, for Facts About Concrete Masonry.



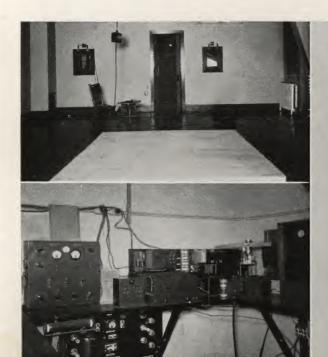
Showmanship is the basis of successful theater operation: novel architecture, spectacular signs and elaborate decoration—each is an unmistakable symbol proclaiming that entertainment is at hand. Concrete masonry plays a large part in modern theater construction because it enables the architect to combine good structural design and attractive architectural and decorative treatment with acoustic properties that are absolutely essential. Lightweight concrete masonry with its rough texture prevents echoes, controls sound, helps the architect achieve an acoustically satisfactory auditorium. The same material offers beautiful textures and patterns that may be painted or stenciled in any appropriate design. Because concrete masonry is also strong, durable, firesafe and economical, it has become one of the most popular materials for theater construction.

Upper right—Attractive lobbies are expected in most modern theaters. In the Circle Theater at Detroit the name of the theater is symbolized by a circular lobby with walls of concrete masonry. Every third course uses specially molded units to form dentil bands. This is but one of many simple, interesting ways of using concrete masonry for decorative effects. Bennett & Straight, architects; Board & Yates, contractor.

Standard sizes of concrete masonry were used in the construction of the Rives Theater at Martinsville, Virginia. Inside, the masonry is exposed to form a neutral background for curtain murals by Tony Sarg. The exposed masonry, of course, is the principal acoustic aid. C. K. Howell, architect. G. D. Mitchell, contractor.



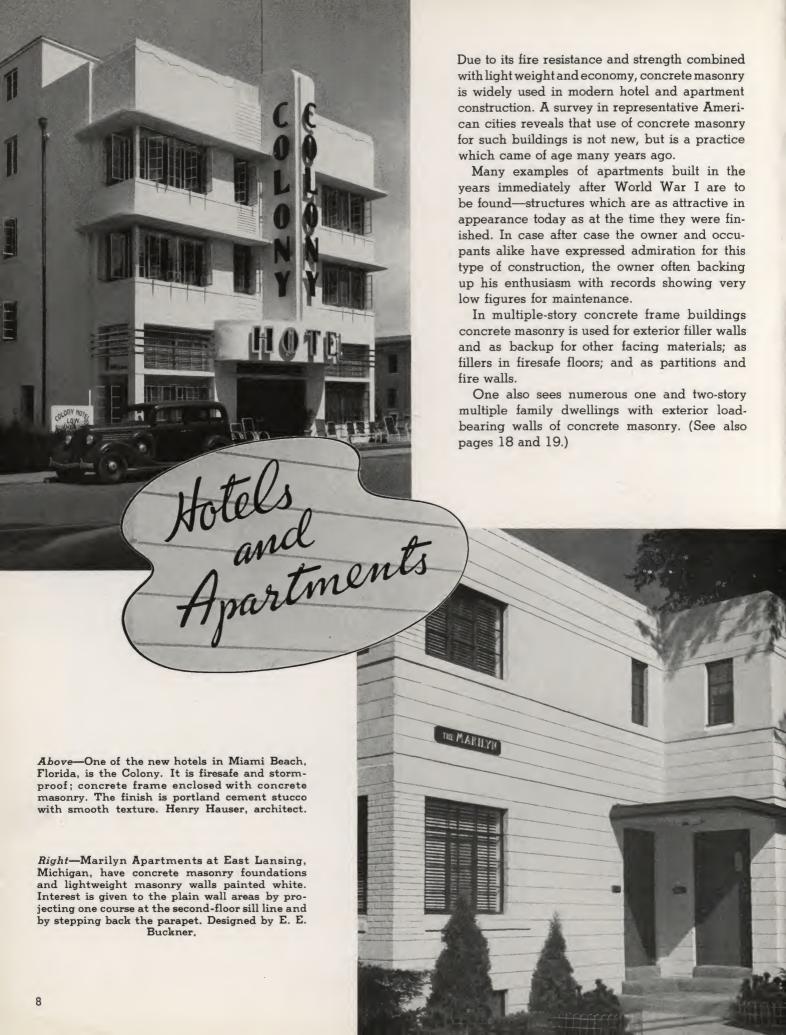




FOR GOOD ACOUSTICS

Numerous auditoriums are now being built of concrete masonry because of its excellent sound-absorbing properties. Its value in this respect is proved by tests made by the University of Illinois. (Upper left—Wall panel in standard position for test. Below—Delicate instruments used.) The results show that even concrete masonry made with dense aggregates of low porosity (such as sand and gravel) is more sound-absorbent than the usual hard plasters, and can be used advantageously in building walls to control sound. Porous, open-textured concrete masonry made with lightweight aggregates has a very high acoustical rating.

Any material absorbing sound to the extent of 15 per cent or more is regarded as a useful acoustic aid. The usual hard, smooth interior surfaces absorb only about 3 per cent of the sound in a room. Concrete masonry made with sand and gravel or other heavy aggregates absorbs 21 to 27 per cent; units made with porous lightweight aggregates absorb about 50 per cent.











Above—The Garden Lane Apartments at Miami, Florida, comprise 16 family units of 6 rooms each. Modern in design, the entire structure is built of concrete masonry, painted inside and outside. Upton Ewing, architect. J. W. Ricketts Construction Co., builder.

Left top—Concrete brick was used as facing for the Newport Court Apartments at Houston, Texas. The decorative band at sill and window heads was made by turning the concrete units on their sides. The finish is white portland cement paint. Swenson & Heidbreder, architects. Ivan H. Greer, contractor.

Left center—Approximately 500,000 concrete masonry units were used as backup in the popular Haddon Hall at Atlantic City. A great many of the partitions are also firesafe concrete masonry. Rankin and Kellogg, architects. Turner Construction Co., contractor.

Left bottom—Windsor Arms, another of approximately 30 concrete masonry apartments erected in Omaha in 1921 and 1922. Exposed masonry has required no maintenance. Painted for first time in 1938. These buildings have enjoyed continuously high rate of occupancy and rental return, according to owners.

FOR WEATHER RESISTANCE

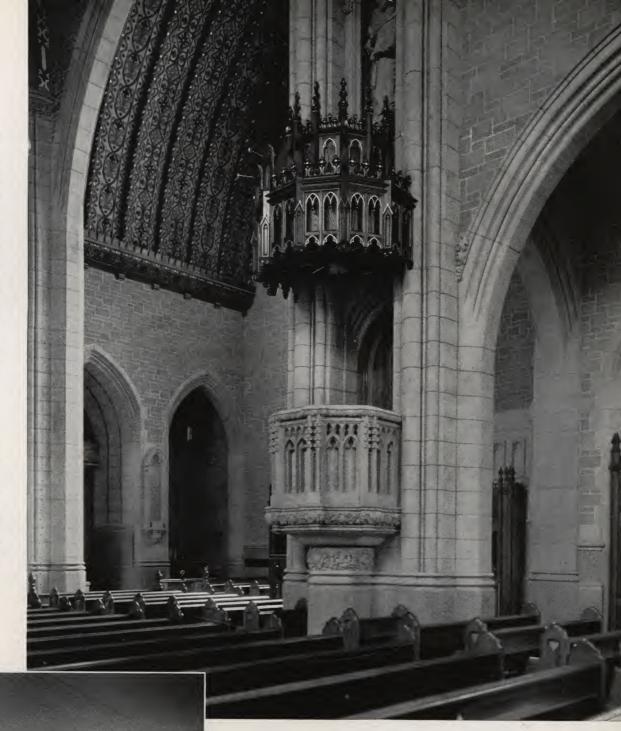
Even a cloudburst during a windstorm will not cause leakage in a properly built concrete masonry wall made watertight with portland cement stucco or with portland cement paint. This fact, well known among builders and architects, has been confirmed by rain-resistance tests conducted by the Portland Cement Association at its field laboratory at Elmhurst, Illinois.

As with any type of masonry, good concrete masonry construction is easily obtained by observance of certain simple rules.



Right-Valleyfield Cathedral at Quebec, Canada, is one of many large churches in which concrete masonry has been used to achieve impressive wall effects. Random and coursed ashlar form the plain wall areas, with cast stone used for trim. First cost is low. The economy of concrete masonry is further apparent when it is realized that practically no redecorating expenses will be necessary in this beautifulstructure. Architects: Henri S. Labelle in collaboration with J. M. Lafleur and J. E. Perron, associates, and Louis N. Audet, consulting architect. Contractor: Deschamps & Belanger.

Below—A large proportion of the commercial and residential buildings in Palm Springs, California, are concrete masonry—and so are its two churches. Typical of the Spanish architecture of the region, Our Lady of Solitude Church is concrete masonry. Albert C. Martin of Los Angeles, architect. Alvah F. Hicks of Palm Springs, builder.



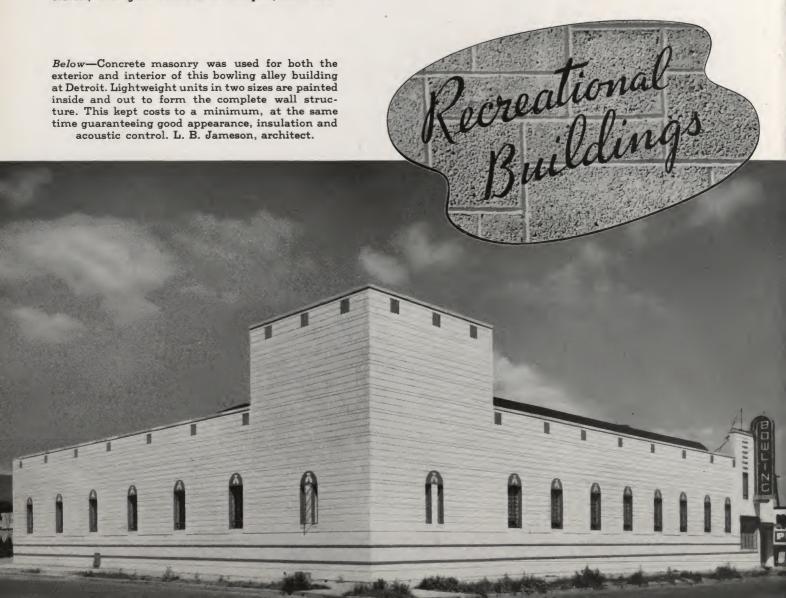
FOR BEAUTY

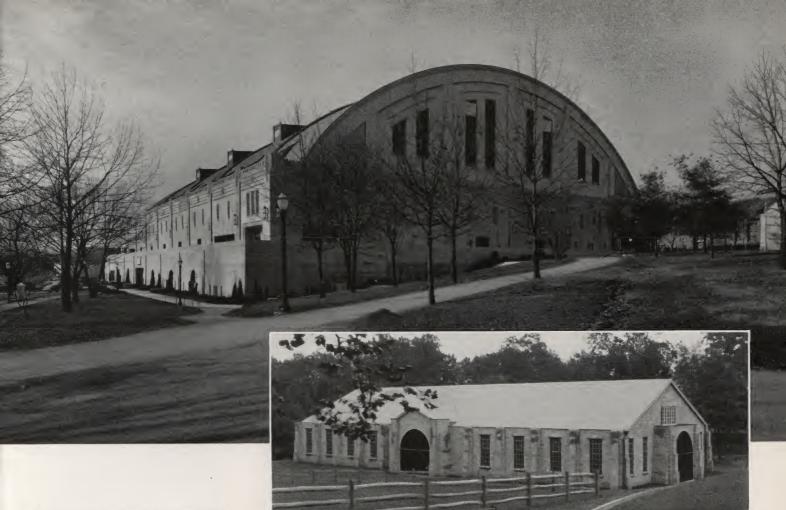
Concrete masonry is an architectural as well as a structural material. Using standard units of a single size only, a surprising range of pleasing effects can be obtained by varying treatment of joints and choice of textures. Whole units combined in ashlar patterns with two or more fractional sizes further widen the architectural possibilities. In fact, architects and builders can vary pattern, texture and color to achieve practically any effect desired; the only limit is the ingenuity of the designer. Before you build, ask your local concrete masonry manufacturer, mason contractor or architect to show you! Also write Portland Cement Association for booklet Concrete Ashlar Walls.



Wherever large throngs gather to witness indoor sporting events, concrete masonry is a most effective construction material. One reason is that it withstands constant, hard wear without damage to structure or appearance—and that means large savings in maintenance costs. Another, and more immediately important reason, is the sound-absorption properties of lightweight concrete masonry which aid in the suppression of noise; for example, the control of sudden bursts of cheering. The combined effect of this material is a pleasant, comfortable, firesafe sports arena.

Above—Lightweight concrete masonry, exposed inside and outside, resulting in "a lot of good-looking building for the money". Recreation Hall and Auditorium, Eagle-Ottawa Leather Co., Grand Haven, Michigan. Robinson & Campau, architects.

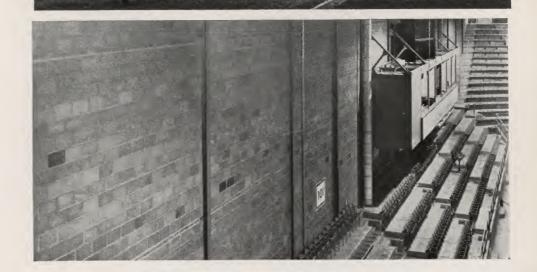




Above—Over 60,000 lightweight units were used for backing up walls of Hershey Sports Arena, Hershey, Pennsylvania. Designed and built by Hershey Lumber Products Co.

Upper right—Concrete masonry John S. Thomas Memorial Gymnasium at Valley Forge Military Academy, Wayne, Pennsylvania. Gabriel B. Roth, architect.

Lower right—More than 130,000 concrete masonry units were used on the interior of Cleveland's great Arena which serves throughout the year for hockey, basketball, boxing and other crowd-luring sport events. Warner & Mitchell, architects. Gillmore-Carmichael-Olson Co., contractor.



FOR GOOD INSULATION

Concrete masonry walls can be built to provide the degree of insulation desired. Such walls, especially those made with lightweight aggregate units, provide good insulation in themselves. Added protection against the conductivity of heat through such walls can be obtained by furring out the plaster or by the application of rigid insulation to the inner face of the

wall before plastering. By selecting the proper type and thickness of insulating material, any degree of insulation desired can be obtained. Or the cells within the units can be filled with a porous insulation, greatly reducing possible heat loss. Moreover, concrete masonry walls are tight, preventing infiltration of air. Maximum comfort and low fuel bills are characteristic of well built concrete masonry structures.



Nowhere does concrete masonry have a wider range of usefulness than in office buildings. Because of its fire-resistive qualities, it is widely used for floor filler, partitions, fire walls and for backing up exterior walls. The new recognition of its architectural possibilities has led to increasing use for exteriors and interiors alike. Outside, its proper use results in enduring beauty and low maintenance; inside, concrete masonry, exposed and painted, creates walls of pleasing color, texture and pattern, with desirable soundabsorbing properties. This latter feature of reducing noises makes for greater efficiency of the office staff. Or as a backup for other facings, concrete masonry provides a very economical method of construction and an excellent base for a conventional plaster finish.

Before you complete plans for your office building or other large framed structure, learn why the walls of so many buildings are backed up with

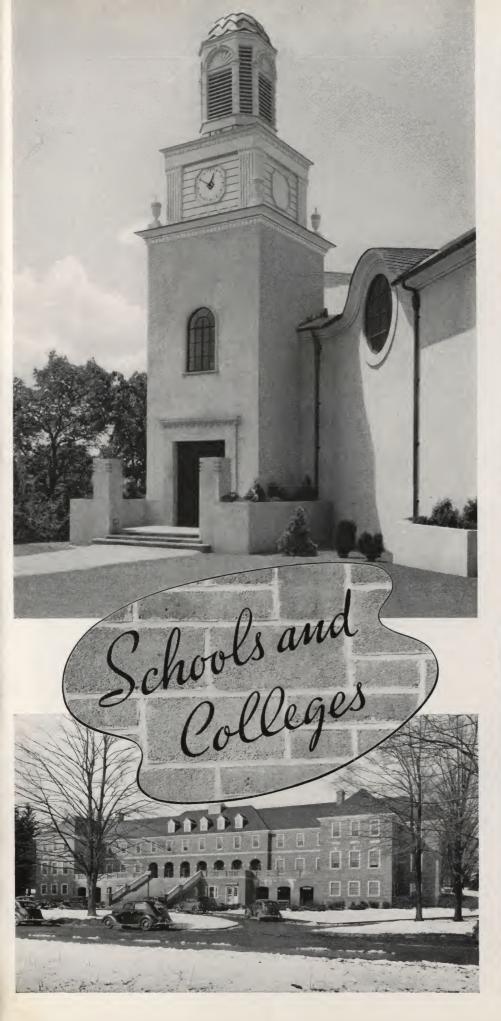
concrete masonry. Its the firesafe, money-saving, weight-saving way to build. (Below—Masonry backup on Integrity Trust Bldg., Philadelphia.)



Left—Lightweight concrete masonry backup was used in this modern office building of Skelly Oil Co., Kansas City, Missouri. Edward W. Tanner, architect. J. C. Nichols, builder.

Below—Lincoln Tower, Fort Wayne, Indiana. Exterior walls of entire building backed up with lightweight concrete masonry. A. M. Strauss & Walker & Weeks, architects. Buesching & Hagerman, general contractor.





School campuses today present interesting contrasts. One school assiduously maintains a cloistered Old World atmosphere. Another builds toward a brisk, modern effect in keeping with city life around it. Whatever the school building plan, concrete masonry is a ready ally of the architect. While providing the desired qualities of permanence, firesafety and economy, concrete masonry enables the designer to reproduce without the use of other materials virtually any architectural feeling; to erect new buildings in harmony with older structures; and to contribute a "touch" at times which is concrete's own. Shown here are only a few among many examples of concrete masonry in educational buildings.

Left—Memorably beautiful as well as structurally safe and enduring is Knox Chapel at St. John's Military Academy, Manlius, New York. Walls and interior wall columns are of concrete masonry, exposed and painted on the interior, with portland cement stucco applied to the exterior. Architect, Alexander Trowbridge. Builder, Taylor Construction Co.

Lower—Lightweight concrete masonry of pleasing texture beautifies the corridors, partitions and interior walls of the Student Activities Building, Virginia Polytechnic Institute, Blacksburg, Virginia. Carneal, Johnston & Wright, architects. Wise Contracting Co., builder.





One of many beautiful, fires afe concrete masonry schools in California is the Beverly Hills High School. The concrete tile exterior was given a light stuccowash. Designed by Robert D. Farguhar and built by Henry W. Schlueter.

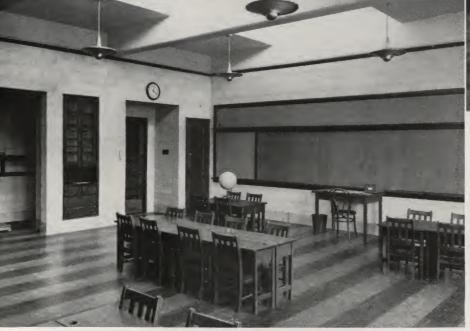
Another auditorium in which one economical material in walls and ceiling—lightweight concrete masonry—served three purposes: structural, acoustical, architectural. The R. W. Jones Elementary School, Nashville, Tennessee, also utilized lightweight concrete masonry for wall backup and for filler tile with concrete and terrazzo floor surface. C. K. Colley & Son, architects and engineers. Nile E.

Yearwood, contractor.



A camera could hardly do justice to the warm, satisfying tones and texture of these walls. Concrete masonry units of varied color shading are laid up in random ashlar patterns. Lounge room at Toledo (Ohio) University.





Notice how tasteful and pleasing is this room in Cunningham School, Joliet, Illinois, done with standard units carefully laid and painted. Architect, J. E. Coyle. Contractor, Pere Anderson & Co.



FOR FIRESAFETY

Concrete masonry walls have substantial load-carrying ability and safety before, during, and after severe fire exposure. Concrete masonry units meeting standard requirements for walls having 2-hour, 3-hour and 4-hour fire ratings are available in most sections of the country. In fact, the greater percentage of concrete masonry units, as now manufactured throughout the United States.

is eligible for Underwriters' Inspection Service. At Underwriters' Laboratories, test walls are exposed to furnace heat on one side, the temperature rising rapidly to 1000 deg. F., reaching 1700 deg. F. at 1 hour and 1925 deg. F. (white hot) at the end of 3 hours. During the test the panel carries a load equal to the maximum allowed in most building codes. While still white hot the walls are given the fire hose stream test (left) to determine the effects of sudden cooling.



Large scale housing projects, both privately financed and built with Government aid, have made extensive use of concrete masonry. Frequently this material is employed for exterior walls exposed and painted. In other instances concrete masonry is used for exposed or plastered partitions and as the principal structural material in exterior walls having a stucco or brick facing.

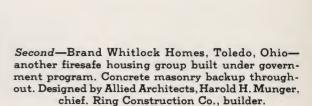
The reasons for this choice in large scale housing are no different than for other types of buildings: firesafety—weather resistance—good appearance—moderate first cost—good acoustical and insulative properties—assurance of moderate upkeep costs—plus the added reason that these qualities assure greater security and a higher

Top—"K" Street Apartments, Washington, D. C., one of four low rent, large scale housing projects built at the national capital by the Alley Dwelling Authority and Public Works Administration. Concrete masonry walls finished with portland cement paint and furred and plastered on the inside. Homer J. Smith, architect. Walter B. Avery, builder.

Lower—Greenbelt town, Berwyn, Maryland. Farm Security Administration project. Painted concrete masonry walls and concrete floors—firesafe, economical in maintenance, clean and fresh in appearance.

return on capital investment to lenders and sponsors over long-term mortgage periods. Here is one readily available material combining all these advantages.





Top—Example of housing project privately financed with FHA-insured mortgage. Country Club Apartments, Greensboro, North Carolina. Concrete floors and concrete masonry walls and partitions make this group thoroughly firesafe. Exposed lightweight concrete masonry used for interior walls of halls and stairways—for good appearance, low maintenance and high sound absorption. Charles C. Hartman, architect. George W. Kane & Co., builder.



Third—Greendale, near Milwaukee, another resettlement housing project in which concrete masonry helps lend assurance of long life for the structures.



Bottom—Stanley S. Holmes Village, United States Housing Authority project at Atlantic City, New Jersey—firesafe construction throughout. Concrete floors and roof; concrete masonry principal structural material in walls. J. Vaughn Mathis, Herman Turon and Vivian B. Smith, architects. John McShain Co., builder.



FOR STANDARD CONSTRUCTION

When you build with concrete masonry you are using a fully standardized type of construction. For every problem of design and every detail there is a recommended practice based on long experience and frequently supported by scientific tests. As a result, you can know in advance not only your costs, but the fire rating, strength and other physical properties of your wall.

Builders, architects and owners will be interested in the 64-page manual, Facts About Concrete Masonry, available free on request to the Portland Cement Association, 33 West Grand Avenue, Chicago.

This publication summarizes test data and recommended practices, with chapters on strength and stability; fire resistance; strength after fire exposure; heat transmission; sound absorption; sound transmission; cost factors; weather resistance; standard specifications; and Underwriters' Laboratories' standards for concrete masonry. Write for copy.





met these requirements well-in the superintendent's home, numerous residence buildings, school, laundry, dairy, assembly hall, power plant, industrial hall, office building and printing plant.

"My building problem is different," says the institutional leader, the fraternal executive, the prison official, the zoo keeper, the candlestick maker. And because his problem is different, the versatility of concrete masonry frequently is employed to help meet his specialized needs. Beauty of a particular kind? Firesafety? Great strength and stability? Permanence? If masonry can be used at all, experience shows that concrete masonry is a convenient, low cost way to provide for each of these requirements in proper degree and relation.





Above—Harborview Hospital at Seattle, Washington, owes its strength and safety to a reinforced concrete frame and 175,000 units of concrete masonry backup. Thomas, Grainger and Thomas, architects. Western Construction Co., contractor.

Left—Firesafety and low maintenance are requirements for modern prison buildings. Architectural attractiveness is another. At the Birks County, Pennsylvania, prison these advantages are achieved through the use of a single material—concrete masonry. Architects, Alfred Hopkins and Associates. Contractor, L. H. Focht and Son, Inc.



FOR BETTER BUILT HOMES

Concrete masonry is the fastest growing type of home construction today. No other type of construction combines so many of the qualities desired in the home—distinctiveness, firesafety, weather resistance, comfort, economy of first cost and maintenance.

Send for the free, illustrated booklet that thousands have received, Why People Like Concrete Homes. Contains many examples of attractive homes.



Exposed concrete masonry interiors have reached a new high in popularity during the past few years, for several reasons. One is the decorative beauty of concrete due to the development of many textures, shapes and colors. Another is the durability of concrete, which assures that the freshly-created beauty will be lasting. Other reasons are the acoustic and insulative values that can be achieved. With one material you get beauty, durability, comfort and economy—and that adds up to owner satisfaction.

Left—Concrete masonry of simple texture and pattern, emphasized by raked mortar joints, was all that was necessary to produce this beautiful wall in the Varsity Theater, Detroit. The units are integrally colored.

Lower left—This popular cafe at Kansas City, Missouri, uses random ashlar in various harmonious colors for its high walls. The lightweight concrete masonry walls absorb and cut down the usually annoying restaurant noises, make eating a quiet pleasure. Besecke & Swanson, architects.

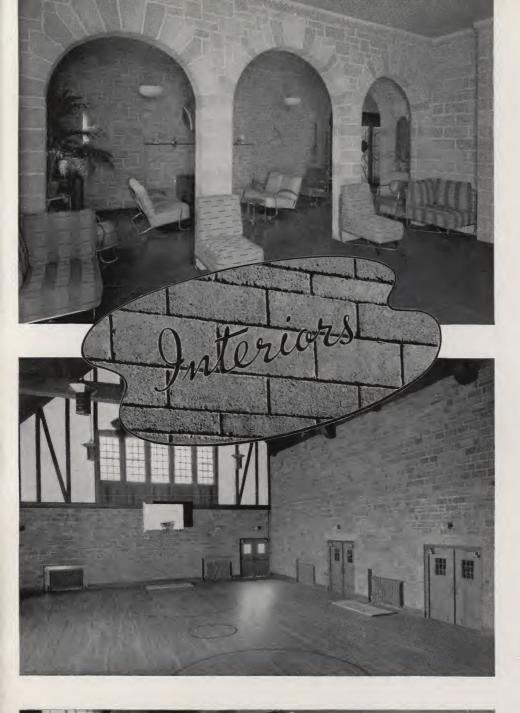
Below—All concrete is the reception room at Dr. J. H. Hester's eye, ear and nose clinic at Louisville, Kentucky. The walls are concrete masonry in neutral tones, the floor is terrazzo and overhead are exposed precast concrete joists which make a splendid beamed ceiling.





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Left—A modern touch was given to the Kearns Garden Chapel funeral home at Waterloo, Iowa. This was done largely through clever use of concrete masonry—some walls in ashlar patterns, others coursed. Interesting special shapes were used for arches. J. H. Wise, architect. Henry Hanson, builder.

Center—More decorative than most gymnasiums is the one at Manheim Township School in northern Illinois. Its great beamed ceiling is set off by high concrete masonry walls which provide an indestructible play court. Henry Y. Shaub, architect. D. S. Warfel, contractor.

ON THE BACK COVER, concrete ashlar interior walls of East Detroit Theater. Bennett & Straight, architects. Board & Yates, contractor.

FOR HELP ON YOUR BUILDING PROBLEM

Nearly every community today is served by one or more concrete masonry manufacturers. Owners, builders, architects and financial interests concerned with a building problem are urged to consult one of these reputable firms. The concrete masonry manufacturer in your community will be glad to put you in touch with good mason contractors and give you facts on latest developments in concrete masonry. His interest and yours are the same—to achieve a good looking, well built structure that will serve economically through the years.

